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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,639	05/14/2001	Akira Oosawa	Q61187	7275

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EXAMINER
TABATABAI, ABOLFAZL

ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/853,639	OOSAWA, AKIRA
	Examiner	**Art Unit**
	Abolfazl Tabatabai	2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 May 2001*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-13 and 16-19* is/are rejected.

7)☐ Claim(s) *5,14 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Objections

1.   Claims 1-4, 10, 11, 14, 15 and 17 are objected to because of the following

informalities:

There is no space between the words of claims 2-4, 10, 11, 14, 15 and 17. For example

claim 2, line 1 and claim 3, lines 1 and 2 have no spaces between the words.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1-4,6,7,10-13, 16 and 17 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Kano et al (U S 5,359,513) in view of Maceda et al (U S 5,153,444).

Regarding claim 1, Kano discloses a method of matching positions of images, in

which positions of two images of a single same object are matched with each other, the

method comprising the steps of:

i) performing approximate position matching processing with respect to entire

areas of the two images (column 2, lines 38-50 and column 6, lines 45-62);

ii) selecting local area limited regions, in the two images, whose positions have

been approximately matched with each other by the approximate position matching

processing (column 5, lines 1-16 and 48-57).

iii) performing position re-matching processing with respect to at least the local

area limited regions, which have thus been selected (column 5, lines 1-12 and 48-57).

However, Kano is silent about the specific details regarding a degree of shift is high.

In the same field "matching position" on endeavor, however, Maceda discloses a

system for detecting patterns comprising a degree of shift is high (column 7, lines 19-27

and column 28, lines 34-52).

It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to use a degree of shift is high as taught by Maceda in the system

of Kano because Maceda provides Kano a system which is capable of performing the

pattern defect detection with the two-cell comparison method and the two-cell

comparison method switched to each other automatically, without the need for

specifying the coordinate and also a plurality of shifted images in alignment with a high

degree of agreement are selected for two patterns and errors between two patterns are

calculated for each pixel using values at all the shifted positions and values in the

vicinity therefore, whereby and error image is generated and , depending therein,

pattern recognition is performed.

Regarding claim 2, Kano discloses a method wherein the approximate position

matching processing is global position matching processing for performing transform

processing comprising at least one kind of processing, which is among rotating

processing (column 6, lines 28-34), parallel translation, and image size enlargement or

reduction processing (column 13, lines 34-45), on an entire area of at least either one of

the two images (column 5, lines 1-12 and 48-57).

Regarding claim 3, Kano discloses a method wherein the approximate position

matching processing is local position matching processing for:

setting a plurality of template regions, which are small regions, in one of the two

images (column 8, lines 54-64 and column 11, lines 10-21);

setting a plurality of search regions, each of which corresponds to one of the

template regions having been set in the one image and is larger than each of the

template regions, in the other image (column 8, lines 54-64);

determining a subregion in each of the search regions, in which

subregion an image pattern approximately coincides with the image pattern within the

corresponding template region (column 7, lines 22-31); and,

performing nonlinear strain transform processing on the entire area of at least

either one of the two images and in accordance with corresponding position

relationships between the subregions, which have thus been determined, and the

corresponding template regions, such that the two images approximately coincide with

each other (column 12, lines 1-18).

Claim 4, is similarly analyzed as claim 3 above.

Regarding claim 6, Kano is silent about the specific details regarding the

selection of the local area limited regions, between which the degree of shift is high, is

performed by setting a plurality of sets of corresponding local area limited regions in the

two images, calculating the degree of shift between the corresponding local area limited

regions in the two images and with respect to each of the sets of the corresponding

local area limited regions in the two images, and selecting the local area limited

regions, between which the degree of shift is high, in the two images in accordance with

the degrees of shift, which have been calculated with respect to the sets of the

corresponding local area limited regions in the two images.

In the same field "matching position" on endeavor, however, Maceda discloses a

system for detecting patterns comprising the selection of the local area limited regions

(column 10, lines 37-49), between which the degree of shift is high (column 7, lines 19-

27), is performed by setting a plurality of sets of corresponding local area limited regions

in the two images, calculating the degree of shift between the corresponding local area

limited regions in the two images and with respect to each of the sets of the

corresponding local area limited regions in the two images, and selecting the local area

limited regions, between which the degree of shift is high, in the two images in

accordance with the degrees of shift, which have been calculated with respect to the

sets of the corresponding local area limited regions in the two images (column 27, lines

8-25 and column 30, lines 41-58).

It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to use calculating the degree of shift between the corresponding

local area of the sets of the corresponding local limited regions in the two images as

taught by Maceda in the system of Kano because Maceda provides Kano a system

which is capable of performing the pattern defect detection with the two-cell comparison

method and the two-cell comparison method switched to each other automatically,

without the need for specifying the coordinate and also a plurality of shifted images in

alignment with a high degree of agreement are selected for two patterns and errors

between two patterns are calculated for each pixel using values at all the shifted

positions and values in the vicinity therefore, whereby and error image is generated

and, depending therein, pattern recognition is performed.

Regarding claim 7,Kano is silent about the specific details regarding the degree

of shift between the corresponding local area limited regions is calculated as a total sum

value of absolute values of pixel value differences between corresponding pixels in the

corresponding local area limited regions in the two images, and the selection of the local

area limited regions, between which the degree of shift is high, is made by performing

threshold value processing on the total sum value of the absolute values of the

pixel value differences between the corresponding pixels in the corresponding local

area limited regions.

In the same field "matching position" on endeavor, however, Maceda discloses a

system for detecting patterns comprising the degree of shift between the corresponding

local area limited regions is calculated as a total sum value of absolute values of pixel

value differences between corresponding pixels in the corresponding local area limited

regions in the two images (column 27, lines 8-24), and the selection of the local area

limited regions, between which the degree of shift is high, is made by performing

threshold value processing on the total sum value of the absolute values of the

pixel value differences between the corresponding pixels in the corresponding local

area limited regions (column 15, lines 3-30).

It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to use calculating the degree of shift between the corresponding

local area of the sets of the corresponding local limited regions in the two images and

performing threshold value as taught by Maceda in the system of Kano because

Maceda provides Kano a system which is capable of performing the pattern defect

detection with the two-cell comparison method and the two-cell comparison method

switched to each other automatically, without the need for specifying the coordinate and

also a plurality of shifted images in alignment with a high degree of agreement are

selected for two patterns and errors between two patterns are calculated for each pixel

using values at all the shifted positions and values in the vicinity therefore, whereby and

error image is generated and, depending therein, pattern recognition is performed.

Claim 10, is similarly analyzed as claim 1 above.

Claim 11, is similarly analyzed as claim 2 above.

Claim 12, is similarly analyzed as claim 3 above.

Claim 13, is similarly analyzed as claim 4 above.

Claim 16, is similarly analyzed as claim 6 above.

Claim 17, is similarly analyzed as claim 7 above.

4.   Claims 8, 9, 18 and 19 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Kano et al (U S 5,359,513) and Maceda et al (U S 5,153,444) as

applied to claims 1 and 10 above and further in view of Suzuki et al (U S 5,572,566).

Regarding claim 8, Kano and Meceda are silent about the specific details

regarding the two images are images, which have been recorded in a time series

manner at different points of time.

In the same field on endeavor, however, Suzuki x-ray imaging system and x-ray generating detector for activating the same comprising the two images are images, which have been recorded in a time series manner at different points of time (column6, lines 1-19 and column 9, lines 57-64).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use images recorded in a time series manner as taught by Suzuki in the system of Kano because Suzuki provides Kano a system in which cooperation of an x-ray generator and an image processing device is realized so that the workability of the x-ray imaging is improved, and the timing of an x-ray exposure and that of starting the operation of reading an image from and imager device are made constant so the a stable x-ray image is obtained.

Regarding claim 9, Kano and Meceda are silent about the specific details regarding the two images are medical radiation images.

In the same field on endeavor, however, Suzuki x-ray imaging system and x-ray generating detector for activating the same comprising the two images are medical radiation images (column 9, lines 57-67).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use medical radiation images as taught by Suzuki in the system of Kano because Suzuki provides Kano a system in which cooperation of an x-ray generator and an image processing device is realized so that the workability of the x-ray imaging is improved, and the timing of an x-ray exposure and that of starting the

operation of reading an image from and imager device are made constant so the a

stable x-ray image is obtained.

Claim 18, is similarly analyzed as claim 8 above.

Claim 19, is similarly analyzed as claim 9 above.

Allowable Subject Matter

5.   Claims 5, 14 and 15 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

Other prior art cited

6.   The prior art made of record and not relied upon is considered pertinent to

Applicant's disclosure.

U. S. Patent (U S 6,563,943 B1) to Sasada is cited for connection processing

method for radiation images.

U.S. Patent (U S 6,563,942 B2) to Takeo et al is cited for method for adjusting

positions of radiation images.

U.S. Patent (U S 6,317,510 B1) to Murakami is cited for blackening processing

method and apparatus.

U.S. Patent (U S 6,600,831 B1) to Sasada is cited for connection processing

method for radiation images.

Contact Information

7.   Any inquiry concerning this communication or earlier communications from the Examiner should be directed to ABOLFAZL TABATABAI whose telephone number is (703) 306-5917.

The Examiner can normally be reached on Monday through Friday from 9:30 a.m. to 7:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Mehta Bhavesh M, can be reached at (703) 308-5246. The fax phone number for organization where this application or proceeding is assigned is (703) 872-9306.
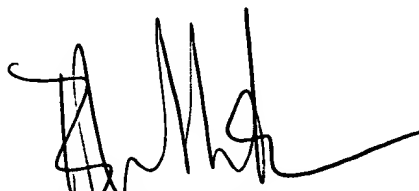
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Abolfazl Tabatabai

Patent Examiner

Group Art Unit 2625

March 29, 2004

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